

SEQUENCE LISTING

<110> Tsukahara, Kappei
 Tsuchiya, Mamiko
 Jigami, Yoshifumi
 Nakayama, Kenichi
 Umemura, Mariko
 Okamoto, Michiyo

<120> METHOD OF SCREENING FOR COMPOUNDS THAT
 INHIBIT THE ENZYMATIC ACTIVITY OF GWT1 GENE PRODUCT

<130> 082368-004400US

<140> 10/536,935

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<150> PCT/JP03/14909

<151> 2003-11-21

<150> JP 2002-339418

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Tyr Ala Ser Glu Pro Tyr Leu Leu Asn Thr Leu Ile Leu Leu Pro Cys	

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 Ile Pro Ser Leu Val Ile Tyr Leu Val Asn Tyr His Val Glu Lys Pro
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260 265 270	
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 Ile Thr Val Tyr Ser Asn Ser Pro Ser Tyr Leu His Tyr Phe Ile Val

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Ser Ser Tyr Leu Ser Phe Arg Leu Leu Lys Lys Ser Leu Gly Asp Leu	
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Ser Ser Pro His Arg Gln Asn Asp Thr Lys Glu Asp Lys Ser Asp Glu	
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Gly	Val	Gly	Ser	Phe	Val	Phe	Ser	Met	Gly	Leu	Ala	Asn	Ser	Arg	Gln	175		
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ttg	atc	aag	aac	cac	acc	gac	aat	tac	aaa	ttt	agt	tgg	aag	agt	tat	576		
Leu	Ile	Lys	Asn	His	Thr	Asp	Asn	Tyr	Lys	Phe	Ser	Trp	Lys	Ser	Tyr	190		
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Leu	Lys	Thr	Ile	Lys	Gln	Asn	Phe	Ile	Lys	Ser	Val	Pro	Ile	Leu	Val	205		
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Leu	Gly	Ala	Ile	Arg	Phe	Val	Ser	Val	Lys	Gln	Leu	Asp	Tyr	Gln	Glu	220		
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cac	gaa	aca	gag	tat	gga	atc	cat	tgg	aat	ttt	ttc	ttc	aca	tta	ggg	720		
His	Glu	Thr	Glu	Tyr	Gly	Ile	His	Trp	Asn	Phe	Phe	Phe	Thr	Leu	Gly	240		
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Phe	Leu	Pro	Ile	Val	Leu	Gly	Ile	Leu	Asp	Pro	Val	Leu	Asn	Leu	Val	255		
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cca	cgc	ttc	ata	ata	gga	att	ggt	atc	tca	att	ggt	tat	gag	gta	gcg	816		
Pro	Arg	Phe	Ile	Ile	Gly	Ile	Gly	Ile	Ser	Ile	Gly	Tyr	Glu	Val	Ala	270		
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ttg	aat	aag	act	ggt	ttg	ttg	aag	ttc	att	ttg	agc	agc	gaa	aac	aga	864		
Leu	Asn	Lys	Thr	Gly	Leu	Leu	Lys	Phe	Ile	Leu	Ser	Ser	Glu	Asn	Arg	285		
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ctt	gaa	tct	ctc	atc	gcc	atg	aat	aaa	gaa	ggt	att	ttt	tcg	ttt	att	912		
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gga	tat	ctt	tgt	att	ttt	ata	att	ggt	cag	tct	ttt	ggg	tca	ttt	gtt	960		
Gly	Tyr	Leu	Cys	Ile	Phe	Ile	Ile	Gly	Gln	Ser	Phe	Gly	Ser	Phe	Val	320		
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tta	aca	ggc	tac	aaa	aca	aag	aac	aac	tta	ata	acc	att	agc	aaa	att	1008		
Leu	Thr	Gly	Tyr	Lys	Thr	Lys	Asn	Asn	Leu	Ile	Thr	Ile	Ser	Lys	Ile	335		
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cgt	att	tca	aaa	aaa	caa	cac	aag	aaa	gag	ctg	ctg	ctg	ttt	ttc	tca	1056		
Arg	Ile	Ser	Lys	Lys	Gln	His	Lys	Lys	Glu	Leu	Leu	Leu	Phe	Phe	Ser	350		
340						345						350						
gtc	gcc	act	act	cag	gga	tta	tat	ttg	gca	tgt	atc	ttc	tat	cac	tta	1104		
Val	Ala	Thr	Thr	Gln	Gly	Leu	Tyr	Leu	Ala	Cys	Ile	Phe	Tyr	His	Leu	365		
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gct ttc agt ttg ttc atc agc aac tta tca ttc ttg caa cca att tca	1152
Ala Phe Ser Leu Phe Ile Ser Asn Leu Ser Phe Leu Gln Pro Ile Ser	
370 375 380	
aga cga ttg gcc aat ttc ccc tac gtc atg tgg gtc gtt tcg tac aat	1200
Arg Arg Leu Ala Asn Phe Pro Tyr Val Met Trp Val Val Ser Tyr Asn	
385 390 395 400	
gct acg ttt tta tta tgt tat gac tta att gaa aaa ttt atc ccg ggg	1248
Ala Thr Phe Leu Leu Cys Tyr Asp Leu Ile Glu Lys Phe Ile Pro Gly	
405 410 415	
aac ctt act tct act gta ttg gac tct att aat aac aat ggt tta ttt	1296
Asn Leu Thr Ser Thr Val Leu Asp Ser Ile Asn Asn Asn Gly Leu Phe	
420 425 430	
atc ttc ttg gtc agc aat tta tta aca ggg ttt att aac atg tcc atc	1344
Ile Phe Leu Val Ser Asn Leu Leu Thr Gly Phe Ile Asn Met Ser Ile	
435 440 445	
aac act ttg gaa act agc aat aaa atg gca gtg att atc ttg att ggc	1392
Asn Thr Leu Glu Thr Ser Asn Lys Met Ala Val Ile Ile Leu Ile Gly	
450 455 460	
tat agt ctt act tgg aca ttg ctc gcc tta tat ttg gat aag agg aag	1440
Tyr Ser Leu Thr Trp Thr Leu Leu Ala Leu Tyr Leu Asp Lys Arg Lys	
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atc tac atc aag ctt tag	1458
Ile Tyr Ile Lys Leu	
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Ser Ser Tyr Leu Ser Phe Arg Leu Leu Lys Lys Ser Leu Gly Asp Leu	
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Ala Leu Ile Tyr Asp Tyr Ile Leu Asn Val Leu Thr Ile Leu Ala Ser	
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Ile Thr Val Tyr Ser Asn Ser Pro Ser Tyr Leu His Tyr Phe Ile Val	
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Ile Pro Ser Leu Val Ile Tyr Leu Val Asn Tyr His Val Glu Lys Pro	
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Ser Ser Pro His Arg Gln Asn Asp Thr Lys Glu Asp Lys Ser Asp Glu	
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Leu Leu Pro Arg Lys Gln Phe Ile Thr Ala Tyr Arg Ser Gln Met Leu
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 Ile Ile Thr Asn Leu Ala Ile Leu Ala Val Asp Phe Pro Ile Phe Pro
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 Arg Arg Phe Ala Lys Val Glu Thr Trp Gly Thr Ser Met Met Asp Leu
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 Gly Val Gly Ser Phe Val Phe Ser Met Gly Leu Ala Asn Ser Arg Gln
 165 170 175
 Leu Ile Lys Asn His Thr Asp Asn Tyr Lys Phe Ser Trp Lys Ser Tyr
 180 185 190
 Leu Lys Thr Ile Lys Gln Asn Phe Ile Lys Ser Val Pro Ile Leu Val
 195 200 205
 Leu Gly Ala Ile Arg Phe Val Ser Val Lys Gln Leu Asp Tyr Gln Glu
 210 215 220
 His Glu Thr Glu Tyr Gly Ile His Trp Asn Phe Phe Phe Thr Leu Gly
 225 230 235 240
 Phe Leu Pro Ile Val Leu Gly Ile Leu Asp Pro Val Leu Asn Leu Val
 245 250 255
 Pro Arg Phe Ile Ile Gly Ile Gly Ile Ser Ile Gly Tyr Glu Val Ala
 260 265 270
 Leu Asn Lys Thr Gly Leu Leu Lys Phe Ile Leu Ser Ser Glu Asn Arg
 275 280 285
 Leu Glu Ser Leu Ile Ala Met Asn Lys Glu Gly Ile Phe Ser Phe Ile
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 Gly Tyr Leu Cys Ile Phe Ile Ile Gly Gln Ser Phe Gly Ser Phe Val
 305 310 315 320
 Leu Thr Gly Tyr Lys Thr Lys Asn Asn Leu Ile Thr Ile Ser Lys Ile
 325 330 335
 Arg Ile Ser Lys Lys Gln His Lys Lys Glu Leu Leu Leu Phe Phe Ser
 340 345 350
 Val Ala Thr Thr Gln Gly Leu Tyr Leu Ala Cys Ile Phe Tyr His Leu
 355 360 365
 Ala Phe Ser Leu Phe Ile Ser Asn Leu Ser Phe Leu Gln Pro Ile Ser
 370 375 380
 Arg Arg Leu Ala Asn Phe Pro Tyr Val Met Trp Val Val Ser Tyr Asn
 385 390 395 400
 Ala Thr Phe Leu Leu Cys Tyr Asp Leu Ile Glu Lys Phe Ile Pro Gly
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 Asn Leu Thr Ser Thr Val Leu Asp Ser Ile Asn Asn Asn Gly Leu Phe
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 Ile Phe Leu Val Ser Asn Leu Leu Thr Gly Phe Ile Asn Met Ser Ile

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435              440              445
Asn Thr Leu Glu Thr Ser Asn Lys Met Ala Val Ile Ile Leu Ile Gly
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Tyr Ser Leu Thr Trp Thr Leu Leu Ala Leu Tyr Leu Asp Lys Arg Lys
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Ile Tyr Ile Lys Leu
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tca agt tcc att gag aca tgt ggc ttg tta tta ata gga att gct tgc      96
Ser Ser Ser Ile Glu Thr Cys Gly Leu Leu Leu Ile Gly Ile Ala Cys
20              25              30

aac gtt ttg tgg gta aac atg act gcg aga aac atc tta ccc aaa ggg      144
Asn Val Leu Trp Val Asn Met Thr Ala Arg Asn Ile Leu Pro Lys Gly
35              40              45

aat ctt ggg ttt ctt gtt gag ttt ttc atc ttt tgc tta att cca tta      192
Asn Leu Gly Phe Leu Val Glu Phe Phe Ile Phe Cys Leu Ile Pro Leu
50              55              60

ttt gtc att tac gtt tca tcg aaa gtt ggc gtt ttc act ctt tgc ata      240
Phe Val Ile Tyr Val Ser Ser Lys Val Gly Val Phe Thr Leu Cys Ile
65              70              75              80

gcc tct ttt ttg cct tcc ttc gtc ctt cat gtt ata agt cca att aat      288
Ala Ser Phe Leu Pro Ser Phe Val Leu His Val Ile Ser Pro Ile Asn
85              90              95

tgg gat gtg ctg aga aga aaa cct ggt tgt tgt ctt act aaa aaa aat      336
Trp Asp Val Leu Arg Arg Lys Pro Gly Cys Cys Leu Thr Lys Lys Asn
100              105              110

gaa aat act ttt gat cga cga att gct gga gtc aca ttt tat cgt tct      384
Glu Asn Thr Phe Asp Arg Arg Ile Ala Gly Val Thr Phe Tyr Arg Ser
115              120              125

caa atg atg ttg gtt act gtc act tgc atc ctg gcc gtt gac ttt acc      432
Gln Met Met Leu Val Thr Val Thr Cys Ile Leu Ala Val Asp Phe Thr
130              135              140

ctt ttc ccg agg aga tat gcc aaa gtt gaa acc tgg gga aca tca ctg      480
Leu Phe Pro Arg Arg Tyr Ala Lys Val Glu Thr Trp Gly Thr Ser Leu

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atg gat ctt ggt gtt gga tct ttc atg ttt tct tca ggt act gtg gct Met Asp Leu Gly Val Gly Ser Phe Met Phe Ser Ser Gly Thr Val Ala	165	170	175	528
gga cgg aaa aat gac att aaa aaa cca aat gcg ttt aaa aat gta ttg Gly Arg Lys Asn Asp Ile Lys Lys Pro Asn Ala Phe Lys Asn Val Leu	180	185	190	576
tgg aat tct ttc atc ctt ttg att tta gga ttt gcg cgc atg ttt tta Trp Asn Ser Phe Ile Leu Leu Ile Leu Gly Phe Ala Arg Met Phe Leu	195	200	205	624
acg aaa agc atc aat tac caa gaa cat gta agc gaa tat ggc atg cat Thr Lys Ser Ile Asn Tyr Gln Glu His Val Ser Glu Tyr Gly Met His	210	215	220	672
tgg aac ttt ttt ttc acc cta ggt ttc atg gct ctt ggc gta ttt ttt Trp Asn Phe Phe Phe Thr Leu Gly Phe Met Ala Leu Gly Val Phe Phe	225	230	235	720
ttt cgt cgt tct tta aaa aaa gtc tcc tat ttt aat tta gca acc ttc Phe Arg Arg Ser Leu Lys Lys Val Ser Tyr Phe Asn Leu Ala Thr Phe	245	250	255	768
att act ctt ctt cat cat tgt ttg ctt gtt tta acc cct ttc caa aaa Ile Thr Leu Leu His His Cys Leu Leu Val Leu Thr Pro Phe Gln Lys	260	265	270	816
tgg gca cta tcc gcc ccc aga aca aat att ttg gct cag aat aga gag Trp Ala Leu Ser Ala Pro Arg Thr Asn Ile Leu Ala Gln Asn Arg Glu	275	280	285	864
ggt att gct tct ctt ccc gga tac att gct att tac ttt tat gga atg Gly Ile Ala Ser Leu Pro Gly Tyr Ile Ala Ile Tyr Phe Tyr Gly Met	290	295	300	912
tat acc ggt agt gta gtt ttg gct gat cga cct cta atg tat act aga Tyr Thr Gly Ser Val Val Leu Ala Asp Arg Pro Leu Met Tyr Thr Arg	305	310	315	960
gct gag tcg tgg aag cgc ttt caa cgt cta tta ttc ccg cta tgc att Ala Glu Ser Trp Lys Arg Phe Gln Arg Leu Leu Phe Pro Leu Cys Ile	325	330	335	1008
ttg tta gtg ttg tat ctt gtg tct aac ttt ttg tca gtt ggt gtt tct Leu Leu Val Leu Tyr Leu Val Ser Asn Phe Leu Ser Val Gly Val Ser	340	345	350	1056
cgc cga ctt gct aat acg cct tat gtt gcg aat gtt gcc ttt atc aat Arg Arg Leu Ala Asn Thr Pro Tyr Val Ala Asn Val Ala Phe Ile Asn	355	360	365	1104
atg ttt ttt ctt act ata tac ata ctt att gat gcc tat tta ttc cca Met Phe Phe Leu Thr Ile Tyr Ile Leu Ile Asp Ala Tyr Leu Phe Pro	370	375	380	1152
tct tct gtg cca tat gga agt cgc gtc ccc aaa ctg ctt gaa gat gcc Ser Ser Val Pro Tyr Gly Ser Arg Val Pro Lys Leu Leu Glu Asp Ala	385	390	395	1200
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aat aat aat ggc ttg ttg gtg ttt ttg att gct aac gtt tta aca gga 1248
 Asn Asn Asn Gly Leu Leu Val Phe Leu Ile Ala Asn Val Leu Thr Gly
 405 410 415

gta gtt aat tta tcg ttc gac acc ctt cat tct agc aat gca aaa ggc 1296
 Val Val Asn Leu Ser Phe Asp Thr Leu His Ser Ser Asn Ala Lys Gly
 420 425 430

ttg aca atc atg act atg tat ctt ttt att att tgc tat atg gca cat 1344
 Leu Thr Ile Met Thr Met Tyr Leu Phe Ile Ile Cys Tyr Met Ala His
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 Asn Leu Gly Phe Leu Val Glu Phe Phe Ile Phe Cys Leu Ile Pro Leu
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 65 70 75 80
 Ala Ser Phe Leu Pro Ser Phe Val Leu His Val Ile Ser Pro Ile Asn
 85 90 95
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 Glu Asn Thr Phe Asp Arg Arg Ile Ala Gly Val Thr Phe Tyr Arg Ser
 115 120 125
 Gln Met Met Leu Val Thr Val Thr Cys Ile Leu Ala Val Asp Phe Thr
 130 135 140
 Leu Phe Pro Arg Arg Tyr Ala Lys Val Glu Thr Trp Gly Thr Ser Leu
 145 150 155 160
 Met Asp Leu Gly Val Gly Ser Phe Met Phe Ser Ser Gly Thr Val Ala
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 180 185 190
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225					230					235					240
Phe	Arg	Arg	Ser	Leu	Lys	Lys	Val	Ser	Tyr	Phe	Asn	Leu	Ala	Thr	Phe
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Ile	Thr	Leu	Leu	His	His	Cys	Leu	Leu	Val	Leu	Thr	Pro	Phe	Gln	Lys
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Trp	Ala	Leu	Ser	Ala	Pro	Arg	Thr	Asn	Ile	Leu	Ala	Gln	Asn	Arg	Glu
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Gly	Ile	Ala	Ser	Leu	Pro	Gly	Tyr	Ile	Ala	Ile	Tyr	Phe	Tyr	Gly	Met
	290					295					300				
Tyr	Thr	Gly	Ser	Val	Val	Leu	Ala	Asp	Arg	Pro	Leu	Met	Tyr	Thr	Arg
305					310					315					320
Ala	Glu	Ser	Trp	Lys	Arg	Phe	Gln	Arg	Leu	Leu	Phe	Pro	Leu	Cys	Ile
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Leu	Leu	Val	Leu	Tyr	Leu	Val	Ser	Asn	Phe	Leu	Ser	Val	Gly	Val	Ser
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Arg	Arg	Leu	Ala	Asn	Thr	Pro	Tyr	Val	Ala	Asn	Val	Ala	Phe	Ile	Asn
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Met	Phe	Phe	Leu	Thr	Ile	Tyr	Ile	Leu	Ile	Asp	Ala	Tyr	Leu	Phe	Pro
	370					375					380				
Ser	Ser	Val	Pro	Tyr	Gly	Ser	Arg	Val	Pro	Lys	Leu	Leu	Glu	Asp	Ala
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Asn	Asn	Asn	Gly	Leu	Leu	Val	Phe	Leu	Ile	Ala	Asn	Val	Leu	Thr	Gly
				405					410					415	
Val	Val	Asn	Leu	Ser	Phe	Asp	Thr	Leu	His	Ser	Ser	Asn	Ala	Lys	Gly
			420					425					430		
Leu	Thr	Ile	Met	Thr	Met	Tyr	Leu	Phe	Ile	Ile	Cys	Tyr	Met	Ala	His
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Lys Glu Ala Phe Val Ser Gly Leu Ala Gly Gly Ser Ile Leu Glu Ile	
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Asn Ala Val Thr Leu Val Ala Ser Val Ser Val Phe Leu Trp Ser Ile	
25 30 35 40	
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Leu Gln Ser Arg Leu Ser Phe Phe Thr Pro Tyr Ser Ala Ala Ala Leu	
45 50 55	
ctc gtt gat ttc ctg ctc aat gta cta gct atc ttg ttc gca acc act	246
Leu Val Asp Phe Leu Leu Asn Val Leu Ala Ile Leu Phe Ala Thr Thr	
60 65 70	
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Leu Tyr Ser Ser Ala Pro Leu Leu Leu Asn Leu Leu Leu Ile Ser Pro	
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gct ctg ctg ata ctc ctc tct acg aaa cgt cct cgg acc ccc gtc aaa	342
Ala Leu Leu Ile Leu Leu Ser Thr Lys Arg Pro Arg Thr Pro Val Lys	
90 95 100	
gcg aaa cct cct cgc cag tcc gct aga gct ggg aaa gat gac tcg aaa	390
Ala Lys Pro Pro Arg Gln Ser Ala Arg Ala Gly Lys Asp Asp Ser Lys	
105 110 115 120	
cat gcg aca gcc ttg cca gag tct cta ccc att cat cca ttt ctc acg	438
His Ala Thr Ala Leu Pro Glu Ser Leu Pro Ile His Pro Phe Leu Thr	
125 130 135	
aca tat cgc gcc gcc atg atg gtt atc acg tgc atc gct atc ttg gct	486
Thr Tyr Arg Ala Ala Met Met Val Ile Thr Cys Ile Ala Ile Leu Ala	
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Val Asp Phe Arg Ile Phe Pro Arg Arg Phe Ala Lys Val Glu Asn Trp	
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Gly Thr Ser Leu Met Asp Leu Gly Val Gly Ser Phe Val Phe Ser Gly	
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Gly Val Val Ser Ala Arg Ser Leu Leu Lys Ser Arg Thr Asn Gly Ser	
185 190 195 200	
aaa agg ttg cct ctt gcc aag agg ttg att gcg tcg acg cga cac tct	678
Lys Arg Leu Pro Leu Ala Lys Arg Leu Ile Ala Ser Thr Arg His Ser	
205 210 215	
att cct ctg ctc gtc ctc ggc ctg att cgg cta tac agc gtc aaa ggc	726
Ile Pro Leu Leu Val Leu Gly Leu Ile Arg Leu Tyr Ser Val Lys Gly	
220 225 230	
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		235					240					245					
ttc	ttt	aca	ttg	ggt	ctt	ttg	cct	ccg	ttc	gtg	gag	gtc	ttc	gac	gcc	822	
Phe	Phe	Thr	Leu	Gly	Leu	Leu	Pro	Pro	Phe	Val	Glu	Val	Phe	Asp	Ala		
	250					255					260						
ttg	gct	acg	atc	att	ccg	tca	tac	gag	gtt	ctc	tcc	gtg	ggg	atc	gcc	870	
Leu	Ala	Thr	Ile	Ile	Pro	Ser	Tyr	Glu	Val	Leu	Ser	Val	Gly	Ile	Ala		
265					270					275					280		
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Val	Leu	Tyr	Gln	Val	Ala	Leu	Glu	Ser	Thr	Asp	Leu	Lys	Ser	Tyr	Ile		
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Val	Phe	Ser	Phe	Ser	Gly	Tyr	Leu	Ala	Ile	Phe	Leu	Ala	Gly	Arg	Ala		
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Ile	Gly	Ile	Arg	Ile	Ile	Pro	Arg	Gly	Thr	Ser	Phe	Ser	Arg	Ser	Pro		
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Glu	Gln	Ala	Arg	Arg	Arg	Val	Leu	Ile	Ser	Leu	Gly	Val	Gln	Ala	Leu		
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Val	Trp	Thr	Thr	Leu	Phe	Val	Leu	Asn	Ser	Thr	Tyr	Ala	Met	Gly	Tyr		
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Gly	Ala	Asn	Ile	Pro	Val	Ser	Arg	Arg	Leu	Ala	Asn	Met	Pro	Tyr	Val		
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Leu	Trp	Val	Ser	Ala	Phe	Asn	Thr	Ala	Gln	Leu	Phe	Val	Phe	Cys	Leu		
		395					400					405					
atc	gaa	aca	ctc	tgc	ttt	cct	gca	gtt	cat	cgg	aca	acg	act	caa	gag	1302	
Ile	Glu	Thr	Leu	Cys	Phe	Pro	Ala	Val	His	Arg	Thr	Thr	Thr	Gln	Glu		
	410					415					420						
agc	gaa	tct	gag	cga	gtc	gat	ttt	gct	acg	agc	cga	atc	atg	tcg	gcc	1350	
Ser	Glu	Ser	Glu	Arg	Val	Asp	Phe	Ala	Thr	Ser	Arg	Ile	Met	Ser	Ala		
425					430					435					440		
ttc	aat	aag	aac	agt	ctc	gcg	atc	ttt	ctt	ttg	gcc	aat	ctt	ctg	act	1398	
Phe	Asn	Lys	Asn	Ser	Leu	Ala	Ile	Phe	Leu	Leu	Ala	Asn	Leu	Leu	Thr		
				445					450					455			
gga	gct	gtg	aat	ctg	agc	atc	tcc	aca	att	gat	gct	aat	aca	gcg	cag	1446	
Gly	Ala	Val	Asn	Leu	Ser	Ile	Ser	Thr	Ile	Asp	Ala	Asn	Thr	Ala	Gln		
			460					465					470				
gcc	atc	gct	gtt	ctc	att	gga	tat	tca	tcc	att	atc	aca	ggg	gtt	gct	1494	
Ala	Ile	Ala	Val	Leu	Ile	Gly	Tyr	Ser	Ser	Ile	Ile	Thr	Gly	Val	Ala		

475	480	485	
cta gca ttg cat cat gcc aat atc aaa gta ctt cct ttc tag			1536
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Val Ser Val Phe Leu Trp Ser Ile Leu Gln Ser Arg Leu Ser Phe Phe			
	35	40	45
Thr Pro Tyr Ser Ala Ala Ala Leu Leu Val Asp Phe Leu Leu Asn Val			
	50	55	60
Leu Ala Ile Leu Phe Ala Thr Thr Leu Tyr Ser Ser Ala Pro Leu Leu			
	65	70	75
Leu Asn Leu Leu Leu Ile Ser Pro Ala Leu Leu Ile Leu Leu Ser Thr			
	85	90	95
Lys Arg Pro Arg Thr Pro Val Lys Ala Lys Pro Pro Arg Gln Ser Ala			
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Arg Ala Gly Lys Asp Asp Ser Lys His Ala Thr Ala Leu Pro Glu Ser			
	115	120	125
Leu Pro Ile His Pro Phe Leu Thr Thr Tyr Arg Ala Ala Met Met Val			
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Ile Thr Cys Ile Ala Ile Leu Ala Val Asp Phe Arg Ile Phe Pro Arg			
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Arg Phe Ala Lys Val Glu Asn Trp Gly Thr Ser Leu Met Asp Leu Gly			
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Val Gly Ser Phe Val Phe Ser Gly Gly Val Val Ser Ala Arg Ser Leu			
	180	185	190
Leu Lys Ser Arg Thr Asn Gly Ser Lys Arg Leu Pro Leu Ala Lys Arg			
	195	200	205
Leu Ile Ala Ser Thr Arg His Ser Ile Pro Leu Leu Val Leu Gly Leu			
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gag	gcc	ttt	gtc	tca	ggt	ctt	gca	gga	gga	agc	atc	ctg	gaa	atc	aac	100
Glu	Ala	Phe	Val	Ser	Gly	Leu	Ala	Gly	Gly	Ser	Ile	Leu	Glu	Ile	Asn	
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gcc	gtc	acc	ttg	ggt	gct	tcg	gttcgtg	gtta	ctatctt	tatt	gtggct	tactt				151
Ala	Val	Thr	Leu	Val	Ala	Ser										
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					Val	Ser	Val									
							35									
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Phe	Leu	Trp	Ser	Ile	Leu	Gln	Ser	Arg	Leu	Ser	Phe	Phe	Thr	Pro	Tyr	
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agc	gcc	gct	gcc	ctt	ctc	ggt	gat	ttc	ctg	ctc	aat	gta	cta	gct	atc	303
Ser	Ala	Ala	Ala	Leu	Leu	Val	Asp	Phe	Leu	Leu	Asn	Val	Leu	Ala	Ile	
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Leu	Phe	Ala	Thr	Thr	Leu	Tyr	Ser	Ser	Ala	Pro	Leu	Leu	Leu	Asn	Leu	
		70					75					80				
ctt	cta	ata	tct	ccc	gct	ctg	ctg	ata	ctc	ctc	tct	acg	aaa	cgt	cct	399
Leu	Leu	Ile	Ser	Pro	Ala	Leu	Leu	Ile	Leu	Leu	Ser	Thr	Lys	Arg	Pro	
	85					90					95					
cgg	acc	ccc	gtc	aaa	gcg	aaa	cct	cct	cgc	cag	tcc	gct	aga	gct	ggg	447
Arg	Thr	Pro	Val	Lys	Ala	Lys	Pro	Pro	Arg	Gln	Ser	Ala	Arg	Ala	Gly	
100					105				110						115	
aaa	gat	gac	tcg	aaa	cat	gcg	aca	gcc	ttg	cca	gag	tct	cta	ccc	att	495
Lys	Asp	Asp	Ser	Lys	His	Ala	Thr	Ala	Leu	Pro	Glu	Ser	Leu	Pro	Ile	
				120					125					130		
cat	cca	ttt	ctc	acg	aca	tat	cgc	gcc	gcc	atg	atg	ggt	atc	acg	tgc	543
His	Pro	Phe	Leu	Thr	Thr	Tyr	Arg	Ala	Ala	Met	Met	Val	Ile	Thr	Cys	
			135					140					145			
atc	gct	atc	ttg	gct	gtg	gat	ttt	cgc	att	ttt	cct	cgc	cga	ttc	gcc	591
Ile	Ala	Ile	Leu	Ala	Val	Asp	Phe	Arg	Ile	Phe	Pro	Arg	Arg	Phe	Ala	
		150					155					160				
aag	gta	gaa	aac	tgg	ggt	aca	tca	ctc	atg	gat	ctg	ggc	ggt	gga	tcg	639
Lys	Val	Glu	Asn	Trp	Gly	Thr	Ser	Leu	Met	Asp	Leu	Gly	Val	Gly	Ser	
	165					170					175					

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Phe Val Phe Ser Gly Gly Val Val Ser Ala Arg Ser Leu Leu Lys Ser	
180 185 190 195	
agg acc aat ggc tct aaa agg ttg cct ctt gcc aag agg ttg att gcg	735
Arg Thr Asn Gly Ser Lys Arg Leu Pro Leu Ala Lys Arg Leu Ile Ala	
200 205 210	
tcg acg cga cac tct att cct ctg ctc gtc ctc ggc ctg att cgg cta	783
Ser Thr Arg His Ser Ile Pro Leu Leu Val Leu Gly Leu Ile Arg Leu	
215 220 225	
tac agc gtc aaa ggc ttg gac tat gcg gag cac gtc acc gag tac ggc	831
Tyr Ser Val Lys Gly Leu Asp Tyr Ala Glu His Val Thr Glu Tyr Gly	
230 235 240	
gta cat tgg aac ttc ttc ttt aca ttg ggt ctt ttg cct ccg ttc gtg	879
Val His Trp Asn Phe Phe Phe Thr Leu Gly Leu Leu Pro Pro Phe Val	
245 250 255	
gag gtc ttc gac gcc ttg gct acg atc att ccg tca tac gag gtt ctc	927
Glu Val Phe Asp Ala Leu Ala Thr Ile Ile Pro Ser Tyr Glu Val Leu	
260 265 270 275	
tcc gtg ggg atc gcc gtc ttg tat caa gtt gcc cta gag tca aca gac	975
Ser Val Gly Ile Ala Val Leu Tyr Gln Val Ala Leu Glu Ser Thr Asp	
280 285 290	
ttg aaa agc tac atc ctc gtc tcc cct cgt ggg cca agc tta ctg tcc	1023
Leu Lys Ser Tyr Ile Leu Val Ser Pro Arg Gly Pro Ser Leu Leu Ser	
295 300 305	
aag aat cgt gaa ggc gtc ttc tcc ttc tca ggt tat ctc gcg att ttt	1071
Lys Asn Arg Glu Gly Val Phe Ser Phe Ser Gly Tyr Leu Ala Ile Phe	
310 315 320	
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Leu Ala Gly Arg Ala Ile Gly Ile Arg Ile Ile Pro Arg Gly Thr Ser	
325 330 335	
ttc tca aga agc cca gaa cag gcc agg aga cgg gtc ctg atc agc ctt	1167
Phe Ser Arg Ser Pro Glu Gln Ala Arg Arg Arg Val Leu Ile Ser Leu	
340 345 350 355	
ggc gtg caa gcg tta gtg tgg acc act ctt ttt gtg ttg aac tcc act	1215
Gly Val Gln Ala Leu Val Trp Thr Thr Leu Phe Val Leu Asn Ser Thr	
360 365 370	
tat gcg atg gga tac gga gct aat atc cct gtc tcc cgc cgc ctc gct	1263
Tyr Ala Met Gly Tyr Gly Ala Asn Ile Pro Val Ser Arg Arg Leu Ala	
375 380 385	
aac atg ccc tat gtc ctt tgg gtt tcg gcg ttc aac acc gcg caa ctg	1311
Asn Met Pro Tyr Val Leu Trp Val Ser Ala Phe Asn Thr Ala Gln Leu	
390 395 400	
ttt gtg ttc tgc ctg atc gaa aca ctc tgc ttt cct gca gtt cat cgg	1359
Phe Val Phe Cys Leu Ile Glu Thr Leu Cys Phe Pro Ala Val His Arg	
405 410 415	
aca acg act caa gag agc gaa tct gag cga gtc gat ttt gct acg agc	1407

Thr	Thr	Thr	Gln	Glu	Ser	Glu	Ser	Glu	Arg	Val	Asp	Phe	Ala	Thr	Ser	
420					425					430					435	
cga	atc	atg	tcg	gcc	ttc	aat	aag	aac	agt	ctc	gcg	atc	ttt	ctt	ttg	1455
Arg	Ile	Met	Ser	Ala	Phe	Asn	Lys	Asn	Ser	Leu	Ala	Ile	Phe	Leu	Leu	
				440					445					450		
gcc	aat	ctt	ctg	act	gga	gct	gtg	aat	ctg	agc	atc	tcc	aca	att	gat	1503
Ala	Asn	Leu	Leu	Thr	Gly	Ala	Val	Asn	Leu	Ser	Ile	Ser	Thr	Ile	Asp	
			455					460					465			
gct	aat	aca	gcg	cag	gcc	atc	gct	gtt	ctc	att	gga	tat	tca	tcc	att	1551
Ala	Asn	Thr	Ala	Gln	Ala	Ile	Ala	Val	Leu	Ile	Gly	Tyr	Ser	Ser	Ile	
		470					475					480				
atc	aca	ggg	gtt	gct	cta	gca	ttg	cat	cat	gcc	aat	atc	aaa	gta	ctt	1599
Ile	Thr	Gly	Val	Ala	Leu	Ala	Leu	His	His	Ala	Asn	Ile	Lys	Val	Leu	
	485					490					495					
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Pro	Phe															
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Lys	Ser	Ala	Lys	Glu	Ala	Phe	Val	Ser	Asp	Asn	Pro	Gly	Ala	Ser	Ile	
5				10					15					20		

tgg	agt	atc	aac	gct	gtc	agc	ctg	gtc	gca	ctg	gtatgtagct	cggttctccga				156
Trp	Ser	Ile	Asn	Ala	Val	Ser	Leu	Val	Ala	Leu						
			25					30								

ggggttctgt	catttggaga	cgcttattaa	ttgggatcgc	ag	gcg	aca	tat	gct								210
					Ala	Thr	Tyr	Ala								
								35								

ctc tgg atc gcc tta tcg ccg tac atc cgt cat gga ctc ctg aac aac	258
Leu Trp Ile Ala Leu Ser Pro Tyr Ile Arg His Gly Leu Leu Asn Asn	
40 45 50	
tac ctg atc tgt gtt ctt ccc cta tta ttc ggg gtg acc atc ttc tca	306
Tyr Leu Ile Cys Val Leu Pro Leu Leu Phe Gly Val Thr Ile Phe Ser	
55 60 65	
act tcg cct ctc gta ttt acc tct ttt ttg tcc att att tcc ctc gct	354
Thr Ser Pro Leu Val Phe Thr Ser Phe Leu Ser Ile Ile Ser Leu Ala	
70 75 80	
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Phe Ile Thr Lys Ser Gln Lys Cys Phe Lys Ser Val Ser Ser Pro Glu	
85 90 95	
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Lys Pro Lys Gly Gln Trp Leu Asp Glu Ser Asp Ser Asp Glu Glu Pro	
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gcg gaa cct gct tct gca gct gga tct gca gca gtc tca cca gta aag	498
Ala Glu Pro Ala Ser Ala Ala Gly Ser Ala Ala Val Ser Pro Val Lys	
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ctt cta cct tcc caa gtg gcg ttc gct tcg gga tcc cta tta tct ccc	546
Leu Leu Pro Ser Gln Val Ala Phe Ala Ser Gly Ser Leu Leu Ser Pro	
135 140 145	
gat ccg aca aca tcc ccc atg tcg cca agt agt tct tca gct tca gga	594
Asp Pro Thr Thr Ser Pro Met Ser Pro Ser Ser Ser Ser Ala Ser Gly	
150 155 160	
cat gaa gac cct ttg ggg att atg ggc gtt aac aga cgg agg tcg cta	642
His Glu Asp Pro Leu Gly Ile Met Gly Val Asn Arg Arg Arg Ser Leu	
165 170 175	
tta gaa gga gtt tcg ctt gat gtt ccg tca cat atc gac tcc aag gtc	690
Leu Glu Gly Val Ser Leu Asp Val Pro Ser His Ile Asp Ser Lys Val	
180 185 190 195	
aga ata tct cct gtt ccc tac ttg agg ctc aaa aag tct agg gca acg	738
Arg Ile Ser Pro Val Pro Tyr Leu Arg Leu Lys Lys Ser Arg Ala Thr	
200 205 210	
aag gcg caa tgg gtg aaa gaa aag gga aga tta cca ttt ttg aca gtg	786
Lys Ala Gln Trp Val Lys Glu Lys Gly Arg Leu Pro Phe Leu Thr Val	
215 220 225	
tac cga gcg cac atg atg ctc atg act gtt atc tgc atc ttg gcg gta	834
Tyr Arg Ala His Met Met Leu Met Thr Val Ile Cys Ile Leu Ala Val	
230 235 240	
gat ttt gaa gtg ttt cct aga tgg cag ggc aag tgc gaa gat ttt ggt	882
Asp Phe Glu Val Phe Pro Arg Trp Gln Gly Lys Cys Glu Asp Phe Gly	
245 250 255	
act agt ctg gtaagctttc cttcagccat ggtccagtgc tcaccgctct	931
Thr Ser Leu	
260	

acttgccgta g atg gac gtg ggt gtc ggg tca ttc gtc ttt tcc ctc ggt	981
Met Asp Val Gly Val Gly Ser Phe Val Phe Ser Leu Gly	
265 270 275	
ctc gtc tcc aca aaa tct ctt tct cct cca cct cca act cct acg ccc	1029
Leu Val Ser Thr Lys Ser Leu Ser Pro Pro Pro Pro Thr Pro Thr Pro	
280 285 290	
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Ser Ser Pro Ala Leu Asn Ser His Ile Ile Pro Leu Thr Pro Ser Pro	
295 300 305	
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Phe Thr Ser Ile Leu Ile Ser Leu Arg Lys Ser Ile Pro Ile Leu Val	
310 315 320	
ctc ggc ttt ata cgg ttg att atg gtc aag gga tct gat tat cct gag	1173
Leu Gly Phe Ile Arg Leu Ile Met Val Lys Gly Ser Asp Tyr Pro Glu	
325 330 335	
cat gtg acg gag tac ggc gtg cac tgg aat ttc ttc ttc acc ctc gca	1221
His Val Thr Glu Tyr Gly Val His Trp Asn Phe Phe Phe Thr Leu Ala	
340 345 350 355	
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Leu Val Pro Val Leu Ala Val Gly Ile Arg Pro Leu Thr Gln Trp Leu	
360 365 370	
cgc tgg agt gtg ctt ggg gta atc atc tct ttg ctg cat cag ctg tgg	1317
Arg Trp Ser Val Leu Gly Val Ile Ile Ser Leu Leu His Gln Leu Trp	
375 380 385	
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Leu Thr Tyr Tyr Leu Gln Ser Ile Val Phe Ser Phe Gly Arg Ser Gly	
390 395 400	
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Ile Phe Leu Ala Asn Lys Glu Gly Phe Ser Ser Leu Pro Gly Tyr Leu	
405 410 415	
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Ser Ile Phe Leu Ile Gly Leu Ser Ile Gly Asp His Val Leu Arg Leu	
420 425 430 435	
agt tta cca cca aga aga gag agg gtc gtg tca gaa aca aat gaa gag	1509
Ser Leu Pro Pro Arg Arg Glu Arg Val Val Ser Glu Thr Asn Glu Glu	
440 445 450	
cat gag cag agt cat ttt gag aga aaa aaa ttg gat ttg att atg gag	1557
His Glu Gln Ser His Phe Glu Arg Lys Lys Leu Asp Leu Ile Met Glu	
455 460 465	
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Leu Ile Gly Tyr Ser Leu Gly Trp Trp Ala Leu Leu Gly Gly Trp Ile	
470 475 480	
tgg gcc ggc ggg gag gta tcc agg cgt tta gtaagtggac atctttggtgta	1655
Trp Ala Gly Gly Glu Val Ser Arg Arg Leu	
485 490	
atattgtacc tatactaatac cctgcataaaa g gcc aac gct cct tat gta ttt	1707

	Ala	Asn	Ala	Pro	Tyr	Val	Phe	
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Trp Val Ala Ala Tyr Asn Thr Thr Phe Leu Leu Gly Tyr Leu Leu Leu								
			505				510	515
acc cac att att cca tct ccc acc tct tcc caa aca tca cca tcg atc								1803
Thr His Ile Ile Pro Ser Pro Thr Ser Ser Gln Thr Ser Pro Ser Ile								
			520				525	530
tta gtg cct ccc ttg ctc gac gct atg aat aaa aac ggt ctc gcg ata								1851
Leu Val Pro Pro Leu Leu Asp Ala Met Asn Lys Asn Gly Leu Ala Ile								
			535				540	545
ttt ttg gcg gcc aac ttg ctt aca gga ctg gtg aat gtg agc atg aag								1899
Phe Leu Ala Ala Asn Leu Leu Thr Gly Leu Val Asn Val Ser Met Lys								
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aca atg tat gcg ccg gcg tgg ttg tca atg ggg gtg tta atg ttg tat								1947
Thr Met Tyr Ala Pro Ala Trp Leu Ser Met Gly Val Leu Met Leu Tyr								
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acc ttg aca atc agt tgt gta ggg tgg ata ctg aaa gga cgg agg atc								1995
Thr Leu Thr Ile Ser Cys Val Gly Trp Ile Leu Lys Gly Arg Arg Ile								
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Lys Ile								

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ggt gct tct atc tgg agt atc aac gct gtc agc ctg gtc gca ctg gcg																	96
Gly Ala Ser Ile Trp Ser Ile Asn Ala Val Ser Leu Val Ala Leu Ala																	
			20				25						30				
aca tat gct ctc tgg atc gcc tta tcg ccg tac atc cgt cat gga ctc																	144
Thr Tyr Ala Leu Trp Ile Ala Leu Ser Pro Tyr Ile Arg His Gly Leu																	
			35				40					45					
ctg aac aac tac ctg atc tgt gtt ctt ccc cta tta ttc ggg gtg acc																	192
Leu Asn Asn Tyr Leu Ile Cys Val Leu Pro Leu Leu Phe Gly Val Thr																	
			50			55					60						
atc ttc tca act tcg cct ctc gta ttt acc tct ttt ttg tcc att att																	240
Ile Phe Ser Thr Ser Pro Leu Val Phe Thr Ser Phe Leu Ser Ile Ile																	
			65			70			75								80

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Ser Leu Ala Phe Ile Thr Lys Ser Gln Lys Cys Phe Lys Ser Val Ser	
85 90 95	
tcg ccc gaa aag cca aaa ggc caa tgg cta gac gaa tca gac tcc gat	336
Ser Pro Glu Lys Pro Lys Gly Gln Trp Leu Asp Glu Ser Asp Ser Asp	
100 105 110	
gag gaa cca gcg gaa cct gct tct gca gct gga tct gca gca gtc tca	384
Glu Glu Pro Ala Glu Pro Ala Ser Ala Ala Gly Ser Ala Ala Val Ser	
115 120 125	
cca gta aag ctt cta cct tcc caa gtg gcg ttc gct tcg gga tcc cta	432
Pro Val Lys Leu Leu Pro Ser Gln Val Ala Phe Ala Ser Gly Ser Leu	
130 135 140	
tta tct ccc gat ccg aca aca tcc ccc atg tcg cca agt agt tct tca	480
Leu Ser Pro Asp Pro Thr Thr Ser Pro Met Ser Pro Ser Ser Ser Ser	
145 150 155 160	
gct tca gga cat gaa gac cct ttg ggg att atg ggc gtt aac aga cgg	528
Ala Ser Gly His Glu Asp Pro Leu Gly Ile Met Gly Val Asn Arg Arg	
165 170 175	
agg tcg cta tta gaa gga gtt tcg ctt gat gtt ccg tca cat atc gac	576
Arg Ser Leu Leu Glu Gly Val Ser Leu Asp Val Pro Ser His Ile Asp	
180 185 190	
tcc aag gtc aga ata tct cct gtt ccc tac ttg agg ctc aaa aag tct	624
Ser Lys Val Arg Ile Ser Pro Val Pro Tyr Leu Arg Leu Lys Lys Ser	
195 200 205	
agg gca acg aag gcg caa tgg gtg aaa gaa aag gga aga tta cca ttt	672
Arg Ala Thr Lys Ala Gln Trp Val Lys Glu Lys Gly Arg Leu Pro Phe	
210 215 220	
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Leu Thr Val Tyr Arg Ala His Met Met Leu Met Thr Val Ile Cys Ile	
225 230 235 240	
ttg gcg gta gat ttt gaa gtg ttt cct aga tgg cag ggc aag tgc gaa	768
Leu Ala Val Asp Phe Glu Val Phe Pro Arg Trp Gln Gly Lys Cys Glu	
245 250 255	
gat ttt ggt act agt ctg atg gac gtg ggt gtc ggg tca ttc gtc ttt	816
Asp Phe Gly Thr Ser Leu Met Asp Val Gly Val Gly Ser Phe Val Phe	
260 265 270	
tcc ctc ggt ctc gtc tcc aca aaa tct ctt tct cct cca cct cca act	864
Ser Leu Gly Leu Val Ser Thr Lys Ser Leu Ser Pro Pro Pro Pro Thr	
275 280 285	
cct acg ccc tcc tcg ccc gct ctc aac tct cac atc att ccc ctc acc	912
Pro Thr Pro Ser Ser Pro Ala Leu Asn Ser His Ile Ile Pro Leu Thr	
290 295 300	
ccg tcc ccg ttc act tcc atc ctc atc tcg ctc cga aaa tcc atc ccc	960

Pro 305	Ser	Pro	Phe	Thr	Ser 310	Ile	Leu	Ile	Ser	Leu 315	Arg	Lys	Ser	Ile	Pro 320	
atc Ile	ctc Leu	gtc Val	ctc Leu	ggc Gly 325	ttt Phe	ata Ile	cgg Arg	ttg Leu	att Ile	atg Met	gtc Val	aag Lys	gga Gly	tct Ser	gat Asp	1008
tat Tyr	cct Pro	gag Glu	cat His 340	gtg Val	acg Thr	gag Glu	tac Tyr	ggc Gly 345	gtg Val	cac His	tgg Trp	aat Asn	ttc Phe	ttc Phe	ttc Phe	1056
acc Thr	ctc Leu	gca Ala 355	ttg Leu	gtt Val	cct Pro	gtg Val	ctc Leu	gcc Ala 360	gtg Val	ggc Gly	att Ile	cga Arg	cca Pro	ttg Leu	acg Thr	1104
cag Gln	tgg Trp 370	ctt Leu	cgc Arg	tgg Trp	agt Ser	gtg Val	ctt Leu	ggg Gly	gta Val	atc Ile	atc Ile	tct Ser	ttg Leu	ctg Leu	cat His	1152
cag Gln 385	ctg Leu	tgg Trp	tta Leu	aca Thr	tat Tyr 390	tat Tyr	ctc Leu	caa Gln	tcc Ser	atc Ile 395	gtc Val	ttc Phe	tca Ser	ttc Phe	ggc Gly 400	1200
cgg Arg	tca Ser	ggt Gly	atc Ile	ttt Phe 405	cta Leu	gca Ala	aac Asn	aag Lys	gaa Glu	ggc Gly 410	ttc Phe	tcc Ser	tct Ser	ctt Leu	cct Pro 415	1248
ggt Gly	tat Tyr	ctt Leu	tcc Ser	ata Ile 420	ttt Phe	ttg Leu	atc Ile	ggc Gly 425	ttg Leu	tct Ser	att Ile	gga Gly	gat Asp	cat His	gtt Val	1296
tta Leu	agg Arg	ctc Leu	agt Ser	tta Leu	cca Pro	cca Pro	aga Arg	aga Arg	gag Glu	agg Arg	gtc Val	gtg Val	tca Ser	gaa Glu	aca Thr	1344
aat Asn	gaa Glu 450	gag Glu	cat His	gag Glu	cag Gln	agt Ser	cat His	ttt Phe	gag Glu	aga Arg	aaa Lys	aaa Lys	ttg Leu	gat Asp	ttg Leu	1392
att Ile 465	atg Met	gag Glu	ttg Leu	att Ile	gga Gly 470	tat Tyr	agc Ser	tta Leu	ggc Gly	tgg Trp 475	tgg Trp	gca Ala	ctc Leu	tta Leu	gga Gly 480	1440
ggc Gly	tgg Trp	att Ile	tgg Trp	gcc Ala 485	ggc Gly	ggg Gly	gag Glu	gta Val	tcc Ser 490	agg Arg	cgt Arg	tta Leu	gcc Ala	aac Asn	gct Ala 495	1488
cct Pro	tat Tyr	gta Val	ttt Phe 500	tgg Trp	gta Val	gcg Ala	gca Ala	tac Tyr 505	aat Asn	acc Thr	acc Thr	ttt Phe	ctc Leu	ctc Leu	ggc Gly	1536
tac Tyr	ctc Leu	ctc Leu	ctt Leu	acc Thr	cac His	att Ile	att Ile	cca Pro	tct Ser	ccc Pro	acc Thr	tct Ser	tcc Ser	caa Gln	aca Thr	1584
tca Ser	cca Pro 530	tcg Ser	atc Ile	tta Leu	gtg Val	cct Pro	ccc Pro	ttg Leu	ctc Leu	gac Asp	gct Ala	atg Met	aat Asn	aaa Lys	aac Asn	1632
ggt Gly	ctc Leu	gcg Ala	ata Ile	ttt Phe	ttg Leu	gcg Ala	gcc Ala	aac Asn	ttg Leu	ctt Leu	aca Thr	gga Gly	ctg Leu	gtg Val	aat Asn	1680

545	550	555	560	
gtg agc atg aag aca atg tat gcg ccg gcg tgg ttg tca atg ggg gtg				1728
Val Ser Met Lys Thr Met Tyr Ala Pro Ala Trp Leu Ser Met Gly Val				
	565	570	575	
tta atg ttg tat acc ttg aca atc agt tgt gta ggg tgg ata ctg aaa				1776
Leu Met Leu Tyr Thr Leu Thr Ile Ser Cys Val Gly Trp Ile Leu Lys				
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gga cgg agg atc aag ata tag				1797
Gly Arg Arg Ile Lys Ile				
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Met Gly Asp Tyr Lys Ser Ala Lys Glu Ala Phe Val Ser Asp Asn Pro																			
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Gly Ala Ser Ile Trp Ser Ile Asn Ala Val Ser Leu Val Ala Leu Ala																			
			20					25									30		
Thr Tyr Ala Leu Trp Ile Ala Leu Ser Pro Tyr Ile Arg His Gly Leu																			
		35					40						45						
Leu Asn Asn Tyr Leu Ile Cys Val Leu Pro Leu Leu Phe Gly Val Thr																			
	50					55						60							
Ile Phe Ser Thr Ser Pro Leu Val Phe Thr Ser Phe Leu Ser Ile Ile																			
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Ser Leu Ala Phe Ile Thr Lys Ser Gln Lys Cys Phe Lys Ser Val Ser																			
				85				90									95		
Ser Pro Glu Lys Pro Lys Gly Gln Trp Leu Asp Glu Ser Asp Ser Asp																			
			100					105									110		
Glu Glu Pro Ala Glu Pro Ala Ser Ala Ala Gly Ser Ala Ala Val Ser																			
			115				120							125					
Pro Val Lys Leu Leu Pro Ser Gln Val Ala Phe Ala Ser Gly Ser Leu																			
	130					135							140						
Leu Ser Pro Asp Pro Thr Thr Ser Pro Met Ser Pro Ser Ser Ser Ser																			
	145				150					155									160
Ala Ser Gly His Glu Asp Pro Leu Gly Ile Met Gly Val Asn Arg Arg																			
				165					170								175		
Arg Ser Leu Leu Glu Gly Val Ser Leu Asp Val Pro Ser His Ile Asp																			
			180					185								190			
Ser Lys Val Arg Ile Ser Pro Val Pro Tyr Leu Arg Leu Lys Lys Ser																			
	195					200								205					
Arg Ala Thr Lys Ala Gln Trp Val Lys Glu Lys Gly Arg Leu Pro Phe																			

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Leu Thr Val Tyr Arg 225	Ala His Met Met 230	Leu Met Thr Val Ile Cys Ile 235 240
Leu Ala Val Asp 245	Phe Glu Val Phe Pro 250	Arg Trp Gln Gly Lys Cys Glu 255
Asp Phe Gly Thr 260	Ser Leu Met Asp Val 265	Gly Val Gly Ser Phe Val Phe 270
Ser Leu Gly 275	Leu Val Ser Thr Lys 280	Ser Leu Ser Pro Pro Pro Thr 285
Pro Thr Pro Ser Ser 290	Pro Ala Leu Asn Ser His 295	Ile Ile Pro Leu Thr 300
Pro Ser Pro Phe Thr 305	Ser Ile Leu Ile Ser Leu 310 315	Arg Lys Ser Ile Pro 320
Ile Leu Val Leu Gly 325	Phe Ile Arg Leu Ile Met 330	Val Lys Gly Ser Asp 335
Tyr Pro Glu His Val Thr 340	Glu Tyr Gly Val His Trp 345	Asn Phe Phe Phe 350
Thr Leu Ala Leu Val Pro 355	Val Leu Ala Val Gly Ile 360 365	Arg Pro Leu Thr
Gln Trp Leu Arg Trp Ser 370	Val Leu Gly Val Ile Ile 375 380	Ser Leu Leu His
Gln Leu Trp Leu Thr Tyr 385	Tyr Leu Gln Ser Ile Val 390 395	Phe Ser Phe Gly 400
Arg Ser Gly Ile Phe 405	Leu Ala Asn Lys Glu Gly 410	Phe Ser Ser Leu Pro 415
Gly Tyr Leu Ser Ile Phe 420	Leu Ile Gly Leu Ser Ile 425	Gly Asp His Val 430
Leu Arg Leu Ser Leu Pro 435	Pro Arg Arg Glu Arg Val 440 445	Val Ser Glu Thr
Asn Glu Glu His Glu Gln 450	Ser His Phe Glu Arg Lys 455 460	Lys Leu Asp Leu
Ile Met Glu Leu Ile Gly 465	Tyr Ser Leu Gly Trp Trp 470 475	Ala Leu Leu Gly 480
Gly Trp Ile Trp Ala Gly 485	Gly Glu Val Ser Arg Arg 490	Leu Ala Asn Ala 495
Pro Tyr Val Phe Trp Val 500	Ala Ala Tyr Asn Thr Thr 505	Phe Leu Leu Gly 510
Tyr Leu Leu Leu Thr His 515	Ile Ile Pro Ser Pro Thr 520	Ser Ser Gln Thr 525
Ser Pro Ser Ile Leu Val 530	Pro Pro Leu Leu Asp Ala 535	Met Asn Lys Asn

530	535	540	
Gly Leu Ala Ile Phe Leu Ala Ala Asn Leu Leu Thr Gly Leu Val Asn			
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Val Ser Met Lys Thr Met Tyr Ala Pro Ala Trp Leu Ser Met Gly Val			
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